

**ABSTRACT**

An imaging system comprises an interferometer and an ultrasound console that processes signals from the interferometer into an image for display. The interferometer may include one or more multi-element photo detectors with a plurality of parallel outputs. A parallel to serial converter is provided between the parallel output of the interferometer and the input of the ultrasound console, to convert the signals provided on the parallel outputs into a serial signal for analysis by the ultrasound console. The interferometer may be selectively coupled to the ultrasound console and the system may further comprise an ultrasound device that may also be selectively coupled to the console, offering a user the option of using either the interferometer or the ultrasound device. The ultrasound console may also include two inputs, one for the interferometer and the other for the ultrasound device. The interferometer and the ultrasound device may both be carried by catheters for insertion into internal body cavities, such as blood vessels. Imaging methods are also disclosed.